



Integrated Water Monitoring and Prediction to Improve Crop Production

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In Sri Lanka

- **Total available surface water**
- 43,200 MCm
- **Irrigation usage**
- 12,000 MCm
- **Domestic & Industrial usage**
- 3,000 MCm
- **Water goes to Sea without utilising**
- 28,200 MCm

In Sri Lanka

From the Surface Water

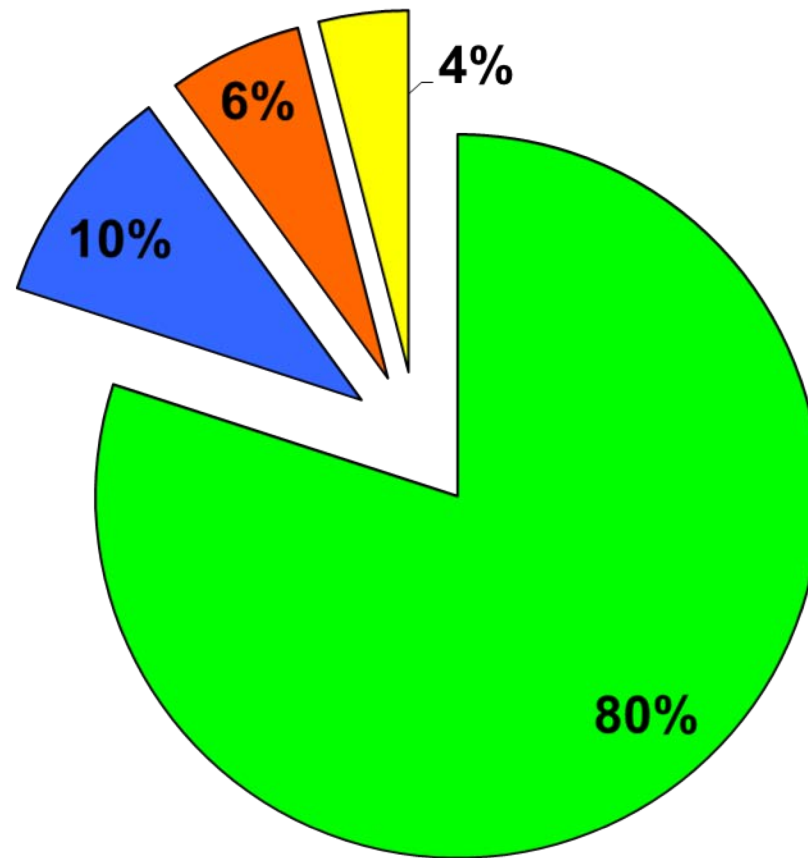
➤ Irrigation usage is 28%

➤ Industrial & Domestic usage is 7%

➤ 65% goes to the sea without any usage



Usage of Water in Sri Lanka



Irrigation

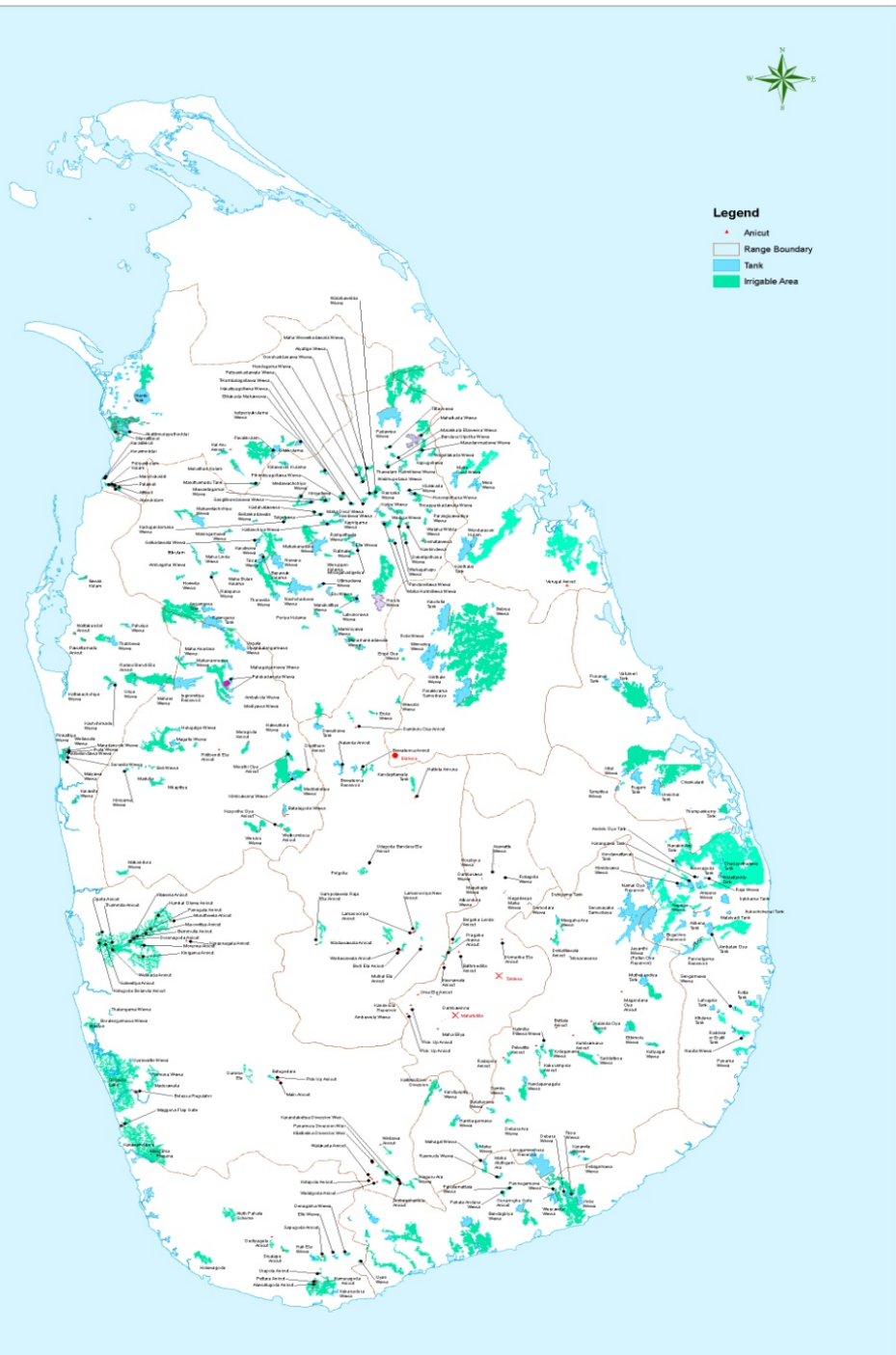
- Irrigation Schemes are Managed by four institutions in Sri Lanka
 - ✓ Mahaweli Authority of Sri Lanka
 - Schemes under Gazetted area as Mahaweli area
 - ✓ Irrigation Department
 - All Major and Medium schemes of interprovincial rivers
 - ✓ Provincial Council
 - All Major and Medium schemes of provincial rivers
 - ✓ Agrarian Development Department
 - All Minor Irrigation Schemes

Irrigated Agriculture in Sri Lanka

■ Irrigation Manage	-	282,000 ha
■ Mahawelli Manage	-	100,000 ha
■ Agrarian Development Department Manage	-	257,000 ha
■ Provincial Council	-	39,000 ha
■ Rainfed	-	145,000 ha
Total	-	823,000 ha

Schemes under the Purview of Irrigation Department

➤ No. of Majors schemes	-	97
✓ Reservoir	-	73
✓ Anicut	-	24
➤ No. of Medium Schemes	-	220



Irrigable Area around the Country under the Purview of Irrigation Department

Irrigation Department

- Irrigation Department manage;
 - ❖ Gravity Irrigation Schemes
 - 304 schemes (281,914 ha)
 - ❖ Lift Irrigation Schemes
 - 6 schemes (2,000 ha)
 - ❖ Flood Protection, Drainage & SWE Scheme
 - 62 schemes

Gravity Schemes Under Irrigation Department

- 320 km length of dams;
- 310 km of feeder canals;
- 2,820 km of main canals & branch canals;
- 2,600 km of distributary canals

Roads maintained by Irrigation Department

- Length of roads - 3,400 km

Maximum Crop Yield

The following factors play an important role in the photosynthesis process:

- ✓ CO₂ Concentration of the air
- ✓ Water availability
- ✓ Solar Radiation
- ✓ Temperature
- ✓ Crop characteristics

CROP YIELD

$$\left[1 - \frac{Y_a}{Y_m}\right] = k_y \left[1 - \frac{ET_a}{ET_m}\right]$$

Where as

Y_a – Actual Dry matter Yield

Y_m – Maximum Dry Matter Yield

ET_a – Actual Evapotranspiration

ET_m – Maximum Evapotranspiration

Water Distribution System

- Our Water Distribution is Imposed
- We prepare Prior Water Delivery Schedule (Seasonal Planning, Project Management Committee & Cultivation Meeting)
- Issue water according to the delivery schedule and in any case if there is a drought the Irrigation Interval is being increased during non sensitive period

Monitoring System

- The reservoir water levels monitored daily and website is updated
- The channel water level, reservoir water levels are monitored manually and gradually being automated

Future Challenges

- Presently the Water Requirement are based on past records of climatic condition. This should be enhanced by remote sensing method.
- Due to the Climate Change the Rainfall intensity increased and dry spell duration also increased. Due to this more water is unutilized during rainy period & cultivation and crop yield are decreased during dry period.

Future Challenges

- To improve efficiency of the distribution system cutting edge technology need to be adopted.

Thank You for Listening !